

What is claimed is:

1. A lead-free solder consisting essentially of:

- (a) 1.0 to 4.0 wt% of Ag;
- (b) 0.4 to 1.3 wt% of Cu;
- (c) 0.02 to 0.06 wt% of Ni; and
- (d) a balance of Sn;

wherein said Ni serves to lower a copper dissolution rate of said solder.

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2. The solder according to claim 1, wherein a content of Ni is in a range from 0.02 to 0.04 wt%.

3. The solder according to claim 1, wherein said solder having a copper dissolution rate of 0.20 μm or less.

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4. The solder according to claim 1, wherein said solder having a liquidus temperature of 240°C or lower.

5. The solder according to claim 1, wherein said solder having a liquidus temperature of 230°C or lower.

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6. The solder according to claim 1, wherein said solder has a

viscosity of 2.5 cP or lower.

7. The solder according to claim 1, further containing 0.02 to 0.06 wt% of Fe.

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8. The solder according to claim 1, further containing 0.02 to 0.05 wt% of Fe.

9. A lead-free solder consisting essentially of:

- 10 (a) 1.0 to 4.0 wt% of Ag;
- (b) 0.4 to 1.3 wt% of Cu;
- (c) 0.02 to 0.06 wt% of Fe; and
- (d) a balance of Sn;

15 wherein said Fe serves to lower a copper dissolution rate of said solder.

10. The solder according to claim 9, wherein a content of Fe is in a range from 0.02 to 0.05 wt%.

20 11. The solder according to claim 9, wherein said solder having a copper dissolution rate of 0.20 μm or less.

12. The solder according to claim 9, wherein said solder having

a liquidus temperature of 240°C or lower.

13. The solder according to claim 9, wherein said solder having a liquidus temperature of 230°C or lower.

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14. The solder according to claim 9, wherein said solder has a viscosity of 2.5 cP or lower.

15. A method of surface-treating a PWD, comprising the steps of:
10 (a) preparing said solder according to claim 1; and
(b) selectively coating said solder on a Cu circuit layer of a PWB.

16. A method of surface-treating a PWD, comprising the steps of:
15 (a) preparing said solder according to claim 7; and
(b) selectively coating said solder on a Cu circuit layer of a PWB.

17. A method of surface-treating a PWD, comprising the steps of:
20 (a) preparing said solder according to claim 9; and
(b) selectively coating said solder on a Cu circuit layer of a PWB.

18. A method of mounting electronic parts on a PWD comprising the steps of:

- (a) preparing said solder according to claim 1; and
- (b) soldering electronic parts on a Cu circuit layer of a PWB with said solder.

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19. A method of mounting electronic parts on a PWD comprising the steps of:

- (a) preparing said solder according to claim 7; and
- (b) soldering electronic parts on a Cu circuit layer of a PWB with said solder.

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20. A method of mounting electronic parts on a PWD comprising the steps of:

- (a) preparing said solder according to claim 9; and
- (b) soldering electronic parts on a Cu circuit layer of a PWB with said solder.

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